

Accountable Climate Governance: Dilemmas of Performance Management across Complex Governance Networks

ASIM ZIA and CHRISTOPHER KOLIBA

Department of Community Development and Applied Economics, University of Vermont, Burlington, VT, USA

ABSTRACT *How can accountability be institutionalized across complex governance networks that are dealing with the transboundary pollution problem of mitigating greenhouse gas emissions at multiple spatial, temporal and social scales? To address this question, we propose an accountability framework that enables comparison of the democratic, market and administrative anchorage of actor accountability within and across governance networks. A comparative analysis of performance measures in a sample of climate governance networks is undertaken. This comparative analysis identifies four critical performance management dilemmas in the areas of strategy, uncertain science, integration of multiple scales, and monitoring and verification of performance measures.*

1. Introduction

Innovative forms of public–public, private–private and public–private partnerships that form the basis of inter-organizational networks operating at multiple geographical scales have recently evolved to create a fragmented system of governance of climate change (Bäckstrand 2008; Biermann 2009). These partnerships

Asim Zia is currently serving as an assistant professor of public policy in the Department of Community Development and Applied Economics at the University of Vermont. His recent research broadly aims at the development of computational and complex-systems based models of public policy and governance network analysis in the substantive policy domains of climate change, transportation, energy, forest conservation, disaster management, airshed and watershed management and international development. He earned a Ph.D. in Public Policy from the School of Public Policy at Georgia Institute of Technology, Atlanta GA.

Correspondence Address: Asim Zia, University of Vermont, Department of Community, Development and Applied Economics, Morrill 208E, 146 University Place, Burlington VT, USA.

Email: Asim.Zia@uvm.edu

Christopher J. Koliba is an associate professor in the Department of Community Development and Applied Economics and director of the MPA Program at the University of Vermont. He earned a Ph.D. from the Maxwell School of Citizenship and Public Affairs at Syracuse University. He has published widely on topics relating to governance networks, action research, communities of practice, and progressive educational policy. He is lead author on the book, *Governance Networks in Public Administration and Public Policy*, published by CRC Press.

Correspondence Address: Christopher Koliba, University of Vermont, Department of Community, Development and Applied Economics, Morrill 208E, 146 University Place, Burlington VT, USA.

Email: Christopher.Koliba@uvm.edu

typically emerge to address “wicked” and complex public policy problems, such as global climate change, fisheries protection (Kooiman 2008) and public infrastructure provision (Vining et al. 2005). A growing number of studies characterize the range of partnerships as “governance networks” (Klijn 1996; Jones et al. 1997; Kickert et al. 1997; Lowndes and Skelcher 1998; Skelcher 2005; Sorensen and Torfing 2005; Torfing 2005; Bogason and Musso 2006; Klijn and Skelcher 2007; Coen and Thatcher 2008; Koliba et al. 2010). A governance network is defined here as relatively stable patterns of coordinated action and resource exchanges involving policy actors crossing different social scales, drawn from the public, private or non-profit sectors and across geographic levels, who interact through a variety of competitive, command and control, cooperative and negotiated arrangements for purposes anchored in one or more facets of the policy stream (Koliba et al. 2010: 60). While inter-disciplinary enthusiasm for the characterization and analysis of governance networks has grown considerably, much more theoretical and empirical work remains to be done to understand how accountability is institutionalized within and across governance networks (Provan and Milward 1995; Bardach and Lesser 1996; Milward 1996; Agranoff and McGuire 2001; Papadopoulos 2003, 2007; Benner et al. 2004; Slaughter 2004; Fredrickson and Fredrickson 2006; May 2007). We assess these accountability and performance management issues in the context of post-Kyoto international climate policy design and address a specific question: How can accountability be institutionalized across governance networks that are dealing with the transboundary pollution problem of mitigating greenhouse gas emissions (GHGs) at multiple spatial, temporal and social scales?

Notwithstanding its significance as a milestone in global environmental policy, the Kyoto Protocol has failed on many accounts in setting up effective and accountable governance mechanisms for reducing GHGs (Cass 2007; Harrison and Sundstrom 2007). Many large emitters of GHGs did not even bother to sign the treaty, as described in terms of the so-called US–China “suicide pact” (Romm 2007). In this paper, we advance the theoretical and empirical research on climate governance through the comparative analysis of accountability in different types of climate change partnerships. Over the last two decades, a variety of network strategies have been devised to address the need to mitigate the factors that are contributing to climate change. In this analysis we argue that the complexity of these governance networks gives rise to a variety of accountability challenges. These challenges are accentuated by the range of public–public, public–private and private–private partnership arrangements that have arisen from these efforts. We argue that each type of partnership arrangement brings with it certain kinds of accountability challenges. However, we also argue that certain accountability challenges confront all forms of international partnership arrangements being devised to mitigate climate change.

In the recent climate change governance literature efforts have been initiated to develop an accountability framework for evaluating the public–public, public–private and private–private climate change governance networks. Bäckstrand (2008) develops a process-based notion of accountability that includes three accountability criteria: (1) transparency; (2) monitoring mechanisms; and (3) representation of stakeholders. While process-based criteria are important components for evaluating accountability of governance networks, it has been suggested in the broader

literature on pluralistic concepts of accountability in governance networks that actors (both individuals and organizations) and outcomes should also be considered as important criteria for comparing the institutionalization of accountability in governance networks (Benner et al. 2004). In section 2, we review the relevant literature on the evolution of the concept of accountability for actors, processes and outcomes in complex governance networks and describe important features of an integrative framework that can be used to comparatively analyze accountability mechanisms across governance networks. In particular, we extend Bäckstrand's (2008) process-based model of accountability for climate change governance networks by incorporating the additional criteria of actor to actor accountability predicated on the nature of ties between them, and then relate these accountability ties to more widely adopted outcome-based forms of accountability. We propose a "Governance Network Accountability Framework" to compare democratic, market and administrative anchorages of actor accountability within and across governance networks. In section 3, we undertake a comparative analysis of performance outcome measures in a stratified sample of public–public, public–private and private–private climate governance networks. This comparative analysis identifies four critical international climate policy design dilemmas that confront humanity for institutionalizing accountability in a global climate governance regime. These dilemmas are related to four questions: First, how to develop consistent performance measures when different governance networks propose different measures. Second, how to incorporate scientific uncertainty into performance measures. Third, how to integrate emission entitlements across multiple space-time scales. Fourth, how to monitor and verify performance benchmarks. Finally, in section 4 we discuss the implications of these performance management and accountability dilemmas in the context of "international democracy-deficit", "politics of knowledge" and "inter-generational accountability" to inform the evolving negotiations on designing international climate policy in the post-Kyoto (post-2012) time frame.

2. The Governance Network Accountability Framework

"Accountability is traditionally defined as the obligation to give an account of one's actions to someone else, often balanced by a responsibility of that other to seek an account" (Scott 2006: 175). In essence, accountability structures arise when a certain measure of interdependency exists between those rendering account (hereafter "accountees") and those to whom accounts should be rendered (hereafter "accounters"). In this paper, we discuss governance as a matter of accountability, with feedback taking place as processes of rendering accounts to particular constituencies, relying on certain explicit standards and tacit norms to do so. This feedback effect of communicating performance information from accountees to accounters has also been characterized as an important feature that distinguishes performance *measurement* from performance *management* systems (Kelman 2006). "Performance management is thus seen as a potentially powerful tool to remedy underperformance in government" (Kelman 2006: 394). Applying Kelman's notion of performance management to accountability in governance networks, we assert that network accountability is a system-level construct involving iterative performance feedback loops between accountees and accounters (Koliba et al.

2010, 2011). The performance feedback loops contain the flow of information on performance measures, which include information on inputs, activities and processes, actors, outputs and outcomes across the system.

Behn (2001), Posner (2002) and Page (2004) have all noted the accountability challenges associated with governance networks, recognizing their complexity and the potential competing aims inherent to the organizations operating within them. Mashaw (2006: 118) calls for the comparison of accountability regimes operating within and across network structures in order to “evaluate their differential capacities, and perhaps articulate hybrid regimes that approximate optimal institutional designs”. In cases where a governance network is comprised of non-profit and for-profit organizations working with governments (e.g. most public-private partnerships), the accountability regimes historically ascribed to governments are not sufficient. According to Scott (2006: 190), “conventional accountability narratives, emphasizing ex-post and hierarchical forms of accountability, with only very limited reach beyond the state actors, are unable to support the burden of providing a narrative of accountability that can legitimate governance structures involving diffuse actors and methods”.

We present a governance network accountability framework that we have used to study accountability across complex governance networks. Our initial application of this framework focused on the accountability failures found within the response and recovery networks following landfall of Hurricane Katrina in 2005 (Koliba et al. 2011). Within this framework, various state and non-state actors who are perceived as accountees and accounters in governance networks engage in adaptive processes over time to select an evolving set of performance measures. In highly functioning performance management systems, performance outcomes are monitored and verified by some mechanism, some information about which is fed back to accountees and accounters for completing the loop of a performance management system (Moynihan 2008).

We argue that the sustainability of accountability ties within complex governance networks is difficult to accomplish. Radin (2006: 235) warns that, “despite the attractive quality of the rhetoric of the performance movement, one should not be surprised that its clarity and siren call mask a much more complex reality”. Performance management is a complicated matter within *individual* organizations, let alone inter-organizational networks. Just what amounts to effective performance within a complex governance network is a matter of perception. It has been noted how performance data and standards come about through the social construction of knowledge that is predicated on a culture of performance fostered within individual organizations (Moynihan 2008) and across complex governance networks (Frederickson and Frederickson 2006; Koliba et al. 2010). Gregory Bateson (1988: 32) has noted that, “the processes of perception are inaccessible; only the products are conscious”. Performance data, performance measures and, ultimately, performance management is complicated by the question of whose perceptions matter. We assert that, presumably, accounters are in the best or the most legitimate position to determine what it means for any social entity to “perform” and, presumably, perform effectively.

Many have noted how the shift from a monocentric system of *government* to a polycentric system of *governance* raises complex *actor* accountability challenges

Table 1. Accountability frames for actors in complex governance networks

Accountability frame	Accounters (those “to whom” accounts are rendered)	Relational power	Explicit standards	Implicit norms
Democratic	Elected representatives and courts	Vertical over public sector	Laws, statutes, regulations	Representation of collective interests; policy goals
	Citizens and courts	Horizontal accesses to public sector organizations/elected officials	Maximum feasible participation; sunshine laws; deliberative forums	Deliberation; consensus; majority rule
	Courts	Vertical legal authority over society	Laws; Statutes; contracts	Precedence; reasonableness; due process; substantive rights
Market	Shareholders/owners	Vertical over management/labor	Profit	Efficiency
	Consumers	Horizontal with owners	Consumer law	Affordability; quality; satisfaction
Administrative	Principals; supervisors; bosses	Vertical over agents; subordinates; contractees	Performance measures; administrative procedures; organizational charts	Deference to positional authority; unity of command; span of control
	Partners; peers	Horizontal with peers	Written agreements; decision-making procedures; negotiation regimes	Trust; reciprocity; durability of relationships
	Peers	Horizontal within profession	Codes of ethics; licensure; performance standards	Professional norms; expertise; competence

Source: Adapted from Koliba et al. (2010).

(Behn 2001; Posner 2002; Goldsmith and Eggers 2004; Page 2004; Pierre and Peters 2005; Mashaw 2006; Scott 2006; Mathur and Skelcher 2007). Because it can no longer be assumed that the nation-state possesses the same kind of vertical authority as traditionally ascribed to governments, governing the actors in inter-organizational networks gives rise to new accountability challenges that cannot be simply modeled

through conventional mono-centric accountability systems. These challenges arise when nation-states are displaced as central actors, market forces are considered and cooperation and collaboration is recognized as an integral administrative activity.

Table 1 provides an overview of the governance network accountability framework, (Koliba et al. 2010, 2011). The framework is predicated on eight different types of accounters *to whom* accountability must be rendered in a complex governance network that includes actors from government, private and civil society organizations. These accounters, be they elected representatives, citizens, courts, shareholders, consumers, supervisors, professionals or collaborators, are placed in the position of judging the performance of the agents that are being held accountable as accountees. These accountees may come from any number of different kinds of actors. Complex performance management problems arise when accounters prioritize conflicting combinations of policy goals, performance measures and other desired procedures and outcomes in a governance network, placing value on and rendering judgment of performance differently (Gruber 1987; Radin 2006). It is also imperative that accounters are capable of or interested in fulfilling their roles, which in the case of climate governance is a serious problem as a large number of potential accounters are either future generations or non-human species that will face the consequences of climate change under business-as-usual scenarios, as predicted in the IPCC (2007) synthesis report.

Because the governance network accountability framework allows for the mingling of democratic, market and administrative factors, we can view accountability in terms of trade-offs between accountability types – be they trade-offs between democracy and market accountabilities, democracy and administrative accountabilities, or intra-administrative accountabilities, such as those found in trade-offs between bureaucratic–collaborative accountabilities (Koliba et al. 2011).

In the context of climate change mitigation, a governance network's capacity to support or hinder the democratic accountability of its actors hinges on its capacity to be described as “democratically anchored”. Sorensen and Torfing (2005: 201) assert that, “governance networks are democratically anchored to the extent that they are properly linked to different political constituencies and to a relevant set of democratic norms that are part of the democratic ethos of society”. Democratic anchorage is one of the central governance features of a governance network. However, it has been noted that governance networks that exist at the international scale are confronted with “democratic deficit” because there are no widely accepted, enforceable international democratic norms (Haas 2004). As we consider climate change, international governance needs to be addressed in the light of the network structures that are implicated in certain kinds of climate change mitigation initiatives and the roles that vertical, horizontal and diagonal relations play with regard to the leadership structure and flow of power and authority. Governance thus needs to be understood in the context of the accountability frameworks that persist within each node (or network actor) as well as across the ties forged between accountees and accounters across governance networks. Comparative analysis of different governance networks, especially analysis of their implicit and explicit performance measures and accountability ties, could potentially inform the design of complex policy regimes dealing with transnational pollution control, bio-terrorism, energy security, water sharing and other global public policy problems. Institutionalization

of accountability through specific policy designs could be informed by such comparative analyses.

The processes of institutionalizing accountability in governance networks merit special consideration as they explicitly deal with the problem of ensuring procedural fairness in complex situations involving a myriad of private and public sector actors. We believe, as also emphasized by Bäckstrand (2008), three criteria of accountability processes need to be explored: (i) transparency and public provision of information by a governance network is critical for ensuring that accounters are able to access the information in a transparent manner; (ii) monitoring mechanisms ensure whether the governance network has institutionalized monitoring of its stated goals and actions taken to meet those goals; and (iii) representation of stakeholders concerns whether partnerships include government, market and civil society actors. These factors are predicated on the extent to which wide-ranging stakeholder groups participate formally in the network, either as lead or as participating partners (Bäckstrand 2008: 82). We argue that the public, private or non-profit sector characteristics of actors will matter.

Democratic accountability is rendered when elected officials, citizens, courts and interest groups are engaged as stakeholders in a transparent manner with monitoring mechanisms that are trusted by all engaged actors. At the international scale, this calls for the reduction of the “democracy deficit” to enable accountability processes in global climate governance networks. Bäckstrand (2008: 98) presents a comparative analysis of process accountability features for a variety of public–public and public–private climate governance networks. From a governance network accountability framework perspective, these three process criteria – transparency, monitoring and stakeholder representation – may be used to describe the process activities that are adopted to maintain effective accountability ties.

Within effective accountability ties, performance measures are used to ascertain the extent to which explicit standards, such as performance inputs, outputs and outcomes are being met. The definition of what constitutes effective performance measures for a governance network is a critical question to be addressed. There have been some studies conducted that look at the efficacy of network structures in achieving ascribed performance outputs and outcomes (see for example Marsh and Rhodes 1992; Heinrich and Lynn 2000; Koontz et al. 2004; Mingus 2004; Frederickson and Frederickson 2006; Kelman 2006, Rodriguez et al. 2007; Vining et al. 2005). The highly contextual nature of the environments that governance networks operate within, coupled with the highly contextual nature of most of the perceptions of the network actors within the network, render the development of consensus around common definitions of viable network performance measures very difficult to achieve.

This becomes an even more complex problem when performance measures across governance networks are compared and assessed for their accountability regimes. In environmental governance arenas, generally, we hypothesize that governance networks dominated by high greenhouse gas emission countries (i.e. US and China) endeavor to choose performance measures that maintain the status quo (i.e. minimal greenhouse gas abatement). On the other hand, if governance networks give voice to those countries that tend to be victims of the environmental crisis (i.e. African countries and Island nations), the victims tend to choose performance measures that

engender maximum feasible change from the status quo (i.e. maximal pollution abatement). Within public–public partnerships, the dominant accountability ties are the elected officials who are responsible for designing and implementing international treaties and protocols. These public–public partnerships are, at least in theory, high in the representation of elected official and citizen interests. Different governance networks are configured with various combinations of high greenhouse gas emitters and those most vulnerable to climate change, for which reason, we postulate that intense conflicts over the choice of performance measures are observed. These performance measures are adaptively updated as performance information flows across governance networks increase, and the science governing the environmental problem matures. In the next section, we apply this theoretical accountability framework to a stratified sample of public–public, public–private and private–private climate governance networks and focus the empirical comparison on their choice of specific performance “outcome” measures vis-à-vis accountability ties of the actors in these different governance networks.

3. Comparative Analysis of Accountability Ties and Performance Outcome Measures across Climate Change Governance Networks

The United Nations Framework Convention on Climate Change (UNFCCC) has driven the international process of addressing climate change mitigation and adaptation at the global scale by relying on the voluntary participation of representative country governments. The UNFCCC process represents an example of a “public–public” governance network. Under the UNFCCC process, the Kyoto Protocol¹ was a first significant step in setting up a global governance regime for reducing GHGs.

From a governance network analysis perspective, there are numerous other public–public, public–private and private–private governance networks that are simultaneously trying to address climate change mitigation and adaptation issues. Some other examples of public–public climate change governance networks include the Asia-Pacific Climate Change Partnership (APP),² the International Partnership for the Hydrogen Economy (IPHE),³ the Carbon Sequestration Leadership Forum (CSLF),⁴ Cities for Climate Protection (CCP)⁵ and the Clinton Climate Initiative (CCI).⁶ Similarly, some “private–private” governance networks addressing climate change include the International Climate Change Partnership (ICCP),⁷ the World Business Council for Sustainable Development Climate (WBCSD) Partnerships⁸, Combat Climate Change (3C)⁹ and the Greenhouse Gas Protocol Initiative (a partnership between World Resources Institute and World Business Council for Sustainable Development).¹⁰ Finally, some examples of “public–private” climate change governance networks include the Renewable Energy Policy Network for 21st Century (REN21),¹¹ the Renewable Energy and Energy Efficiency Partnership (REEP),¹² Joint Implementation projects (JI) under the Kyoto Protocol (~170 projects),¹³ Clean Development Mechanism (CDM) projects under the Kyoto Protocol (~1620 projects),¹⁴ World Bank Prototype Carbon Fund (PCF)¹⁵ projects and US EPA’s Methane to Markets (M2M)¹⁶ projects. In these examples, regulations, grants and contracts give structure to networks structured through inter-organizational projects or programs.

Table 2. Performance measures (activities and expected outcomes) and their deadlines across sampled climate change governance networks

Type of governance network	Sampled climate governance network	Performance measures	
		Activities and expected outcomes	Deadlines
Private–private	ICCP	Address continued growth of greenhouse gas emissions through mechanisms such as emissions trading. Business and industry expertise are important parts of this process. Technological innovation is crucial	Vague
	3C	Businesses cooperate to reduce emissions for a stable climate by putting a price on carbon emissions, setting minimum efficiency standards, encouraging sustainable forestry and agriculture, and pushing low carbon technologies	Vague
Public–public	UNFCCC	Countries coming together to consider what can be done to reduce global warming and to cope with whatever temperature increases are inevitable. The Kyoto Protocol sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas emissions by an average of five per cent against 1990 levels over a five-year period. Kyoto mechanisms include emissions trading, Clean Development Mechanism (CDM) and Joint Implementation (JI)	Reductions must be met over the five-year period 2008–2012
	APP	Overall goal is to accelerate the development and deployment of clean energy technologies. There are sub-goals regarding energy security, national air pollution reduction, and climate change. The Partnership will focus on expanding investment and trade in cleaner energy technologies, goods and services in key market sectors	Vague

(continued)

Table 2. (*Continued*)

Type of governance network	Sampled climate governance network	Performance measures	
		Activities and expected outcomes	Deadlines
Public–private	CDM		
	Yiyang Xiushan Hydropower Project, P.R. China	Reduce CO ₂ emissions by 243,043 metric tons per year by using a consolidated methodology for grid-connected electricity generation from renewable sources	Crediting period of 05/10/09–05/09/16 with lifetime of project lasting 33 years from 08/18/05
	Casa Armando Guillermo Prieto - Wastewater treatment facility for a Mezcal distillery	Reduce CO ₂ emissions by 15,153 metric tons per year by using thermal energy with or without electricity and methane recovery in wastewater treatment	Crediting period of 05/07/09–05/06/16 with lifetime of project lasting 25 years from 4/23/07
	Heilongjiang Chemical N ₂ O Abatement Project	Reduce CO ₂ emissions by 279,319 metric tons per year by implementing catalytic reduction of N ₂ O inside the ammonia burner of nitric acid plants	Crediting period of 05/07/09–05/06/16 with lifetime of project lasting 21 years from 07/17/07
	JI		
	Timisoara Combined Heat and Power Rehabilitation for CET Sud location	Upgrade the existing heat production plant CET Timisoara Sud with cogeneration capacity	Project lifetime is 20 years as of September 2005
	Debrecen landfill gas mitigation project	Installation and operation of a new landfill gas collection system. Reduction in CO ₂ emissions by 413,866 metric tons over crediting period	Crediting period of 01/01/08–12/31/12, with lifetime of project lasting 10 years from 11/30/07
	Revamping and Modernization of the Alchevsk Steel Mill	Replacement of technology and upgrade of all major components of iron and steel making and finishes processes	Crediting period of 01/01/08–12/31/12, with lifetime of project lasting 40 years from 08/24/05

The governance network accountability framework provides a coherent theoretical tool to compare the design of accountability and performance management systems across public–public, private–private and public–private climate change governance networks. More specifically, we apply this integrative framework to a sub-sample of two governance networks for each of the three governance network types: private–private; public–public and public–private, as shown in Table 2. We coded performance outcome measures from the documents released by these different types

of climate governance networks. The third column in Table 2 shows a summary of coded “Performance Outcome and Activity Measures” for the sampled governance networks and their temporal deadlines specified by these governance networks.

We then undertook comparative interpretive analysis (Yanow 1999) of these three governance network types by specific performance outcome and activity measures agreed upon by the sampled governance networks. From this comparative interpretive analysis we derived four performance management dilemmas that currently bedevil the institutionalization of accountability in global climate governance. We call these dilemmas of strategy, uncertain science, integrating multiple scales and verification, each of which is described below along with the findings of comparative interpretive analysis on the performance outcome measures across these governance networks shown in Table 2. We postulate that a meta-level resolution of these dilemmas is critical for institutionalizing accountability in global climate governance; however, there are no global level institutions in place to enable this kind of meta-level resolution across governance networks. The implications of these dilemmas on post-Kyoto international climate policy design are discussed in section 4.

3.1. Dilemma of Strategy

How to develop consistent performance measures when different governance networks propose different measures, such as GHG/year, GHG/BTUs¹⁷ and GHG/capita?

At the international scale, we find that each GHG polluting nation is caught up in proposing a set of performance measures that, by definition, either let that nation free ride or incur minimal abatement costs. Under the UNFCCC negotiated Kyoto Protocol, which represents a public–public type of international governance network dominated by GHG high emission countries, “grandfathering” performance measures were adopted despite calls for GHG/capita-based performance measures by developing countries which are expected to bear the most adverse impacts of climate change (IPCC 2007). The UNFCCC-based public–public governance network was thus co-opted by the strategic goals of rich developed countries into adopting a grandfathered performance measure (reduce GHG/year emissions by a target year below certain baseline year). Interpretive analysis of recent Conference of Parties (COP 15) negotiations in Copenhagen and COP 16 negotiations in Cancun for a post-Kyoto UNFCCC-based international treaty shows that grandfathering-based performance goals are also being considered for a post-Kyoto treaty.

As shown in Table 2, for the public–public climate change governance network of the UNFCCC, a performance outcome measure of reducing GHG/year by ~5 per cent below the 1990 level by 2008–12 was set as a binding commitment for Annex I parties that ratified the Protocol. This performance measure is an example of “grandfathering”, which has been compared in the literature with some other performance outcome measures, such as GHG/capita that was not adopted by the UNFCCC governance network (Najam and Sagar 1998; Biermann 2005). The choice of performance outcome measures within this public–public governance network is thus fraught with political maneuvering and strategizing by network actors. This is in the interest of rich industrialized countries, which happen to be the

major GHG polluters as well, to choose a performance outcome measure that by definition minimizes their GHG emission reduction burdens. Grandfathered targets agreed upon in the Kyoto Protocol, as compared to the GHG/capita type of performance measures, apparently do exactly what serves the interest of rich industrialized countries. The accountability analysis of the UNFCCC governance network thus shows that the choice of performance outcome measure is an artifact of political power and scientific knowledge, which overrides ethical concerns of equity raised by developing countries which have consistently argued that GHG/capita performance measure must be chosen by the UNFCCC (Najam et al. 2003; Cass 2007; Pettenger 2007).

In contrast to the UNFCCC governance network, the APP governance network has remained vague in setting any performance outcome measures, as shown in Table 2. The APP in fact argued that there should be no binding performance measures, which again demonstrates the tragedy of the commons as the APP represents the most sizable GHG polluting countries. Similar vagueness is obvious from the performance measures developed by private–private climate change governance networks – ICCP and 3C – shown in Table 2. Under public–private partnerships of CDM and JI case study projects, there are specific performance outcome measures that have typically very long target dates (as shown in Table 2).

Comparative application of the accountability framework across public–public, private–private and public–private type of climate governance networks reveals variegated patterns of performance outcome measure selection that is contingent upon the type of actor configuration in a particular network. We call it a “dilemma of strategy” in setting up performance standards in complex governance networks. This dilemma is, for example, obvious when we consider the APP governance network. After the Bush administration in the US reneged on the US commitment to sign the Kyoto protocol on the pretext that developing countries were not included in it, the US government, in alliance with other countries that consider the UNFCCC process as too burdensome and potentially a costlier enterprise, decided to engineer a governance network of the seven highest GHG polluting countries that they call the APP. These seven countries are responsible for at least 50 per cent of current global GHG emissions. The performance outcome measure that the APP proposes is no binding commitments to reduce GHG emissions. So the APP does not want a performance standard at all. When criticized for this, some APP leaders called for GHG/BTU and BTU/GDP (i.e. intensity-based) performance standards, which are practically business-as-usual scenarios of growing GHG emissions in the atmosphere.

Dilemma of strategy thus demonstrates that different governance networks, based upon the differential goals and accountability frames of accountees and accounters in the governance networks, propose performance standards in tragedy of the commons situations that minimize actor level costs of pollution abatement. When there are multiple governance networks in public, private and public–private domains with variegated performance outcome measures, it becomes very difficult to hold any governance network accountable on a common performance outcome measure because they do not agree with a common performance outcome measure to begin with. A more serious and intractable horn of the dilemma concerns the fact that the accounters for multi-actor configurations in different governance networks are not interested in holding network actors responsible on some unified

performance outcome measures due to the inherent nature of their value and goal conflicts or, in the case of future generations, mere absence of actors. Furthermore, the inherent trade-offs that persist in complex governance networks may be viewed in terms of competing perspectives from the elected officials of national governments in public–public governance networks or as trade-offs between democratic accountabilities and market accountabilities in public–private partnerships.

3.2. Dilemma of Uncertain Science: How to Incorporate Scientific Uncertainty in Policy Design

In this unfolding tragedy of the commons, actors across various climate governance networks have strategically deployed scientific uncertainty to their advantage. In the UNFCCC governance network, for example, the controversy of whether to consider existing forests as carbon stocks or not, and by how much, provides an interesting case study of this dilemma (e.g. Hirsch et al. 2011). While there is great scientific uncertainty about the carbon uptake functions of forest systems in evolving climatic conditions, some network actors with large standing forests argued for inclusion of forests as carbon sinks. However, other network actors argued against the inclusion of forests, citing scientific research showing diminishing carbon uptake in higher CO₂ concentrations. Inclusion or exclusion of forests as carbon sinks presents one example of the dilemma of uncertain science, as it might be too late to take policy action for or against deforestation by the time scientific uncertainty is reduced.

Another example of this dilemma concerns the differential weights that are accorded to different GHGs based on their CO₂ equivalency. While the UNFCCC aimed at standardizing these weights, there has been a severe critique of the methods used to standardize the weights (IPCC 2007). Some private–private governance networks have expressed their concern that industrial gasses are accorded much higher weights, while some other governance networks have argued the opposite, i.e. the industrial gases should have been accorded even higher weights due to their higher radiation potential. Additional questions about “latent” GHG emissions and their inclusion in the UNFCCC basket of post-Kyoto gasses remain largely unaddressed as well.

The scientific uncertainty about climatic change impacts and how it translates into different positions, especially trade-offs between mitigation and adaptation, pose another set of problems in setting up accountability mechanisms. For some governance networks, increased investments in adaptation strategies will entail higher benefits for future generations of citizens (accounters in our accountability model). Other networks argue for higher investment in mitigation strategies. The lack of scientific certainty about the nature and extent of climate impacts poses daunting challenges for designing efficient and fair policies at multiple generational time scales.

From the comparative perspective, the dilemma of uncertain science may be viewed in terms of trade-offs between professional accountability and either elected official or market accountabilities across various types of governance networks. A country’s failure to take climate change seriously may be fueled by allusions to a scientific uncertainty that is being tied to climate change models. In the midst of this

scientific uncertainty, debates over how to value carbon sinks may be exploited by certain stakeholders as a lack of professional consensus in the scientific community.

3.3. Dilemma of Integrating Multiple Scales: How to Integrate Emission Entitlements across Multiple Space–Time Scales

Climate change mitigation actions are being proposed at multiple space–time scales by different governance networks, which imply that the accountability challenges of measuring their respective performances also multiply with multi-scalar mitigation actions. Double, or even triple accounting of the same “mitigation action” is the biggest concern here. Consider the example of a wind turbine installed in a small town in Europe, for which a city in the CCP governance network claims credit, a firm in ICCP claims credit, and a country in UNFCCC claims credit. In fact, in some voluntary air travel GHG emission offset systems, gross instances of double or triple accounting have been reported for the same set of carbon sinks that are used as GHG emission offsets.

Resolving this dilemma at the inter-governance network level will pose a huge challenge as each governance network and its respective actors have the incentives to undertake double or triple accounting. There has been some movement towards unifying these cross-scalar mitigation activities in terms of a consistent scale, but this remains a huge challenge on many fronts. Consider the example of a huge multinational corporation operating in many countries. Should its mitigation actions in countries where it operates be ascribed to host countries or the country of the corporation’s headquarters? Given the typical accountant goals of profit maximization in private–private climate governance networks, we postulate that public–public or public–private partnerships might be more effective in reducing multiple accounting of the same emission reduction credits. In purely private–private partnerships, there is essentially no democratic accountability and very little, if any, market accountability driving voluntary compliance of mutually determined performance measures.

Different governance networks operate at different geographic and social scales, as shown in Table 2. The question of multi-scalar accountability may be viewed as trade-offs between accounters and accountees at these different geographic and social scales. The public–private partnerships developed for CDM and JI projects operate in specific geographical conditions and temporal scales that are different from the performance outcome measures agreed upon in public–public and private–private types of governance networks. Integration of performance outcome measures across these multiple space–time scales is, perhaps, impossible, while issues of double or triple accounting pose daunting challenges for comparing “observed” performance outcomes claimed by different governance networks.

3.4. Dilemma of Monitoring and Verification: How to Monitor and Verify Performance Benchmarks

Monitoring and verification of claimed mitigation actions poses another set of challenges. There has been a movement towards third party verification of emission reductions (e.g. growing California Climate Action Registry Contracts). In a third

party verification system, accounters hire an independent third party to verify whether accountees have actually reduced the claimed emissions. Despite the proliferation of third party verification systems, there are some monitoring and verification issues that cannot be easily resolved. Consider the example of CDM public–private partnerships established under the flexibility mechanisms of the Kyoto protocol. There is no consensus about how to establish baseline “reforestation” or “afforestation” scenarios in developing countries that are eligible to claim CDM-based emission reduction credits because they are so dependent upon how one calculates baseline scenarios. Some critics argue that CDM has provided perverse incentives to many developing countries to enhance their GHG emission rates so that they could receive more GHG emission reduction credits when lower emission rates (as opposed to exaggerated baseline rates) are verified. Similar challenges exist for the REDD+ (Reduced Emissions from Degradation and Deforestation) policy mechanism negotiated in Cancun COP 16.

Verification of some GHGs is relatively easy (e.g. some industrial gasses), while other GHGs pose persistent dilemmas. Point sources of GHG emissions (e.g. industries) can be easily tracked, but non-point sources (e.g. transportation systems) are not easily amenable to verification. Accurate measurement of transportation activities and transportation behaviors poses age-old modeling dilemmas. The variance of estimates tends to be high. There are also strategic problems with respect to some transportation activities, e.g. military-based transportation operations are typically not reported. Accurate quantities of energy consumed by military activities are not verifiable due to strategic security problems with revealing the nature and extent of these activities. Overall, the governance networks need to develop the capacity to become more effective in verification processes, especially third party certifications. However, as recently evidenced during the Copenhagen negotiations of COP 15, GHG polluting countries such as China refused to institutionalize third party verification mechanisms because they considered these independent verification measures as “infringements on their sovereignty”.

The dilemma of verification is fueled by some of the same trade-offs found in the dilemma of uncertain science. Gaps in the scientific models may be exploited by detractors of climate change, thereby undermining the authority of professional accountability. Scientific verification is also confounded by a range of administrative burdens that accompany verification processes. Which actors have the administrative authority to collect, analyze and verify data? To what extent should self-reported data be accepted? These challenges suggest that the administrative lines of accountability (both bureaucratic and collaborative) are hard to clarify and put into practice. These questions speak to the authenticity of administrative accountabilities that exist in climate change mitigation governance networks.

4. Accountability Framework and Post-Kyoto Climate Governance Regime

We have demonstrated that climate change mitigation strategies are perceived to be undertaken by a large variety of governance networks that present particular accountability challenges. The inherent complexity of climate change governance is fueled by a range of perverse incentives that lead to global “tragedy of commons” for economically vulnerable actors as well as future generations. Our comparative

analysis reveals that less transparent processes, ineffective monitoring mechanisms, inadequate stakeholder representation and lack of consistent performance outcome measures across governance networks gives rise to at least four chronic dilemmas that require meta-level resolutions for institutionalizing inter-governance network level accountability mechanisms. We call these the dilemmas of strategy, uncertain science, multiple scale integration and verification.

If the post-Kyoto climate governance regime that is now being negotiated across a range of governance networks attains the same performance levels as prior efforts, human civilization is very likely to initiate a dangerous spiral of positive feedback loops of GHGs under business-as-usual scenarios. The resulting cascading effects will be difficult to reverse due to atmospheric complexity and non-linear lagged effects (IPCC 2007). More recent climate science, since the fourth assessment IPCC report, presents an even grimmer picture (Raupach et al. 2007; The Copenhagen Diagnosis 2009). It is critical that a post-Kyoto climate governance regime incorporates accountability-driven design features which ensure that anthropogenic GHGs stay well within planetary resilience, prior to the initiation of dangerous positive feedback loops.

If humanity remains trapped in these dilemmas, worst-case climate change scenarios are very likely to materialize. We have argued that this trap need not be inevitable. The climate change governance networks, at both the political and strategic levels, could design governance networks by drawing on the systematic accountability frameworks presented here. Transparent processes need to be promoted to enable cooperative resolutions of these dilemmas. However, this will require meta-level comparative policy analytical thinking and political resolution. The reduction of “democracy deficit” in international/global governance networks could be the first step in this journey. Acknowledgement of inter-generational accountability issues could be another step. The challenges of asymmetric power and knowledge distribution among the actors in governance networks will nevertheless continue to bedevil meta-level political efforts aimed at resolving these dilemmas. More comparative policy analytical research is needed to understand how the feedback loops of institutionalized accountability mechanisms across climate change governance networks affects the emergence of power and knowledge distribution asymmetries at the global scale. Understanding global climate change policy design problems like those discussed here can inform the development of a coherent accountability framework that simultaneously takes into account actors, processes and outcomes.

Acknowledgments

We are grateful to UVM’s James Jefford Center of Policy Research for sponsoring part of this research.

Notes

1. The Kyoto protocol is available at http://unfccc.int/kyoto_protocol/items/2830.php
2. <http://www.app.gov/>
3. <http://www.iphe.net/>
4. <http://www.cslforum.org/>

5. <http://www.iclei.org/index.php?id=800>
6. <http://www.clintonfoundation.org/what-we-do/clinton-climate-initiative/>
7. <http://www.iccp.net/>
8. <http://www.wbcsd.org>
9. www.combatclimatechange.org
10. <http://www.ghgprotocol.org/>
11. <http://www.ren21.net/>
12. <http://www.recep.org/>
13. <http://ji.unfccc.int/index.html>
14. <http://cdm.unfccc.int/index.html>
15. <http://wbcarbonfinance.org>
16. <http://www.epa.gov/methanetomarkets/>
17. BTUs stand for British Thermal Units and GHG/BTU is a type of performance outcome measure that measures GHG emission intensity per unit of energy consumed.

References

- Agranoff, R. and Mcguire, M., 2001, Big questions in public network management research. *Journal of Public Administration Research and Theory*, **11**, pp. 295–326.
- Bäckstrand, K., 2008, Accountability of networked climate governance: The rise of transnational climate partnerships. *Global Environmental Politics*, **8**, pp. 74–102.
- Bardach, E. and Lesser, C., 1996, Accountability in human services collaboratives: For what? And for whom? *Journal of Public Administration Research and Theory*, **6**, pp. 197–224.
- Bateson, G., 1988, *Mind and Nature* (New York: Bantam).
- Behn, R. D., 2001, *Rethinking Democratic Accountability* (Washington, DC: Brookings Institution Press).
- Benner, T., Reinicke, W. H. and Witte, J. M., 2004, Multisectoral networks in global governance: Towards a pluralistic system of accountability. *Government and Opposition*, **39**, pp. 191–210.
- Biermann, F., 2005, Between the USA and the south: Strategic choices for European climate policy. *Climate Policy*, **5**, pp. 273–290.
- Biermann, F., 2009, The fragmentation of global governance architectures: A framework for analysis. *Global Environmental Politics*, **9**, pp. 14–40.
- Bogason, P. and Musso, J. A., 2006, The democratic prospects of network governance. *The American Review of Public Administration*, **36**, pp. 3–18.
- Cass, L. R., 2007, *The Failures of American and European Climate Policy: International Norms, Domestic Politics, and Unachievable Commitments* (New York: State University of New York Press).
- Coen, D. and Thatcher, M., 2008, Network governance and multi-level delegation: European networks of regulatory agencies. *Journal of Public Policy*, **28**, pp. 49–71.
- Frederickson, G. D. and Frederickson, H. G., 2006, *Measuring the Performance of the Hollow State* (Washington, DC: Georgetown University Press).
- Goldsmith, S. and Eggers, W., 2004, *Governing by Network* (Washington, DC: Brookings).
- Gruber, J., 1987, *Controlling Bureaucracies: Dilemmas in Democratic Governance* (Berkeley, CA: University of California Press).
- Haas, P. M., 2004, Addressing the global governance deficit. *Global Environmental Politics*, **4**, pp. 1–15.
- Harrison, K. and Sundstrom, L. M., 2007, The comparative politics of climate change. *Global Environmental Politics*, **7**, pp. 1–18.
- Heinrich, C. J. and Lynn Jr., L. E. (Eds), 2000, *Governance and Performance: New Perspectives* (Washington, DC: Georgetown University Press).
- Hirsch, P. D., Adams, B., Brosius, J. P., Zia, A., Bariola, N. and Dammert, J. L., 2011, Acknowledging conservation trade-offs and embracing complexity. *Conservation Biology*, **25**, pp. 259–264.
- IPCC, 2007, *Climate Change 2007 Synthesis Report*. Intergovernmental Panel on Climate Change, Fourth Assessment Report. Available at <http://www.ipcc.ch>.
- Jones, C., Hesterly, W. S. and Borgatti, S. P., 1997, A general theory of network governance: Exchange conditions and social mechanisms. *Academy of Management Review*, **22**, pp. 911–945.
- Kelman, S., 2006, Improving service delivery performance in the United Kingdom: Organization theory perspectives on central intervention strategies. *Journal of Comparative Policy Analysis*, **8**, pp. 393–419.

- Kickert, W. J. M., Klijn, E.-H. and Koppenjan, J. F. M., 1997, Introduction: A management perspective on policy networks, in: W. J. M. Kickert, E.-H. Klijn and J. F. M. Koppenjan (Eds) *Managing Complex Networks* (London: Sage), pp. 1–11.
- Klijn, E.-H., 1996, Analyzing and managing policy processes in complex networks. *Administration and Society*, **28**, pp. 90–119.
- Klijn, E.-H. and Skelcher, C., 2007, Democracy and governance networks: Compatible or not? *Public Administration*, **85**, pp. 587–608.
- Koliba, C., Meek, J. and Zia, A., 2010, *Governance Networks: Public Administration and Policy in the Midst of Complexity* (Abingdon, UK: Taylor and Francis).
- Koliba, C., Mills, R. M. and Zia, A., 2011, Accountability in governance networks: An assessment of public, private, and nonprofit emergency management practices following hurricane Katrina. *Public Administration Review*, **71**, pp. 210–220.
- Kooiman, J., 2008, Exploring the concept of governability. *Journal of Comparative Policy Analysis*, **10**, pp. 171–190.
- Koontz, T. M., Steelman, T. A., Carmin, J., Korfmacher, K. S., Moseley, C. and Thomas, C. W., 2004, *Collaborative Environmental Management: What Roles for Government?* (Washington, DC: RFF Press).
- Lowndes, V. and Skelcher, C., 1998, The dynamics of multi-organizational partnerships: An analysis of changing modes of governance. *Public Administration*, **76**, pp. 313–333.
- Marsh, D. and Rhodes, R. A. W., 1992, *Policy Networks in British Government* (Oxford: Oxford University Press).
- Mashaw, J. L., 2006, Accountability and institutional design: Some thoughts on the grammar of governance, in: M. W. Dowdle (Ed.) *Public Accountability: Designs, Dilemmas and Experiences* (Cambridge: Cambridge University Press), pp. 115–156.
- Mathur, N. and Skelcher, C., 2007, Evaluating democratic performance: Methodologies for assessing the relationship between network governance and citizens. *Public Administration Review*, **67**, pp. 228–237.
- May, P. J., 2007, Regulatory regimes and accountability. *Regulation and Governance*, **1**, pp. 8–26.
- Milward, H. B., 1996, Symposium on the hollow state: Capacity, control, and performance in inter-organizational settings. *Journal of Public Administration Research and Theory*, **6**, pp. 193–195.
- Mingus, M. S., 2004, Validating the comparative network framework in a Canada/United States context. *Journal of Comparative Policy Analysis*, **6**, pp. 15–37.
- Moynihan, D. P., 2008, Learning under uncertainty: Networks in crisis management. *Public Administration Review*, **68**, pp. 350–361.
- Najam, A. and Sagar, A., 1998, Avoiding a cop-out: Moving towards systematic decision-making under the climate convention. *Climatic Change*, **39**, pp. iii–ix.
- Najam, A., Huq, S. and Sokona, Y., 2003, Climate negotiations beyond Kyoto: Developing countries concerns and interests. *Climate Policy*, **3**, pp. 221–231.
- Page, S., 2004, Measuring accountability for results in interagency collaboratives. *Public Administration Review*, **64**, pp. 591–606.
- Papadopoulos, Y., 2003, Cooperative forms of governance: Problems of democratic accountability in complex environments. *European Journal of Political Research*, **42**, pp. 473–501.
- Papadopoulos, Y., 2007, Problems of democratic accountability in network and multilevel governance. *European Law Journal*, **13**, pp. 469–486.
- Pettenger, M. E. (Ed.), 2007, *The Social Construction of Climate Change* (Burlington, VT: Ashgate).
- Pierre, J. and Peters, G., 2005, *Governing Complex Societies: Trajectories and Scenarios* (New York: Palgrave Macmillan).
- Posner, P., 2002, Accountability challenges of third-party government, in: L. Salamon (Ed.) *The Tools of Government: A Guide to the New Governance* (New York: Oxford University Press), pp. 53–71.
- Provan, K. G. and Milward, H. B., 1995, A preliminary theory of inter-organizational effectiveness: A comparative study of four community mental health systems. *Administrative Science Quarterly*, **40**, pp. 1–33.
- Radin, B., 2006, *Challenging the Performance Movement: Accountability, Complexity and Democratic Values* (Washington, DC: Georgetown University Press).
- Raupach, M. R., Marland, G., Gais, P., Le Quere, C., Canadell, J. G., Klepper, G. and Field, C. B., 2007, Global and regional drivers of accelerating CO₂ emissions. *Proceedings of the National Academy of the Sciences (PNAS)*, **104**, pp. 10288–10293.

- Rodriguez, C., Langley, A., Beland, F. and Denis, J.-L., 2007, Governance, power, and mandated collaboration in an interorganizational network. *Administration and Society*, **39**, pp. 150–193.
- Romm, J., 2007, *Hell and High Water: Global Warming – The Solution and the Politics – and What We Should Do* (New York: Harper Collins).
- Scott, C., 2006, Spontaneous accountability, in: M. W. Dowdle (Ed.) *Public Accountability: Designs, Dilemmas and Experiences* (Cambridge: Cambridge University Press), pp. 174–194.
- Skelcher, C., 2005, Jurisdictional integrity, polycentrism, and the design of democratic governance. *Governance: An International Journal of Policy, Administration, and Institutions*, **18**, pp. 89–110.
- Slaughter, A.-M., 2004, Disaggregated sovereignty: Towards the public accountability of global government networks. *Government and Opposition*, pp. 159–190.
- Sorensen, E. and Torfing, J., 2005, Network governance and post-liberal democracy. *Administrative Theory and Praxis*, **27**, pp. 197–237.
- The Copenhagen Diagnosis, 2009, *Updating the World on Latest Climate Science* (Sydney, Australia: The University of New South Wales Climate Change Research Centre).
- Torfing, Jacob, 2005, Governance network theory: Towards a second generation. *European Political Science*, **4**, pp. 305–315.
- Vining, A. R., Boardman, A. E. and Poschmann, F., 2005, Public–private partnerships in the US and Canada: “There are no free lunches”. *Journal of Comparative Policy Analysis*, **7**, pp. 199–220.
- Yanow, D., 1999, *Conducting interpretive policy analysis* (Sage, London).